# NTNU’s Action Plan for the Implementation of the Charter and Code 2012-2013 (HRS4R). Self-assessment, 15 May 2014

# The researcher’s ethical and professional responsibility

## Research ethics

**Improvement measure: Research ethics in PhD-education***As an element in improving the quality of the organized research training programme and preparing candidates for work in and outside academia, NTNU will strengthen the competence of PhD candidates with respect to research ethics through supervision and training. Deadline: Implementation of the qualifications framework in 2012. Responsible: Pro-Rector for Research*

It is a legal requirement in the PhD education to abide by established standards for research ethics (NTNU Regulations for the philosophiae doctor degree). Research ethical aspects of the research project must be safeguarded in the application for admission to the PhD programme, and through the PhD research work and publications. The Qualifications Framework was implemented in all PhD programmes in 2012. A learning outcome of the PhD education is to be able to identify new relevant ethical problems and to conduct research with academic integrity. The responsibility for providing research ethical training to the PhD candidates is conferred on the Faculties according to NTNU guidelines (NTNU PhD handbook and common standard, 2011). The Faculties normally include ethical issues in their introductory course for new PhD candidates. Most Faculties also offer special courses on research ethics. At all Faculties, the supervisors play a key role in the ethical training of the individual candidates. In an NTNU survey to all PhD candidates and supervisors in 2013 about the quality of the PhD education, candidates responded that they were satisfied with their research ethical training.

The NTNU Programme for Applied Ethics organizes seminars, courses and training in research ethics. The Programme has developed the NTNU Ethics Portal as a web source for staff and students. The Portal contains information about research ethical guidelines and procedures, as well as a collection of cases inviting discussion and reflection on important ethical dilemmas. At the seminar Rector is organizing with the Department heads twice a semester, the seminar this June is devoted to ethical discussions.

The NTNU Research Committee (Pro-Rector and Vice-Deans for Research) is currently considering if NTNU should set up a committee for scientific integrity. The committee may in addition to handling cases of suspicion, also be given a mandate to elucidate more general cases.

## Contractual and legal obligations

**Improvement measure: Management development programme***NTNU’s skills development programmes include goal-oriented measures for new line managers at department level, heads of academic groups, as well as more general courses in project management/project methodology. Deadline: annual. Responsible: Director for HR Division*

NTNU’s ambitious vision to be “internationally outstanding” implies stronger priorities and requires a lot of the line management. NTNU's strategy states that the organization needs to have managers with the ability to set goals, generate enthusiasm and promote academic development. It is the manager's responsibility to conduct business within the limits provided in the regulations and general guidelines. Therefore NTNU allocates a lot of resources to management development programmes.

The Action Plan for the implementation of the Charter and Code 2010-2013, refers to the skills development programme for new line managers at Department level. This programme follows the 4 year academic cycle at NTNU. The programme for 2009-2013 was successfully completed and included Heads of Departments and Heads of Office at the Departments.

The NTNU management development programmes strive to facilitate that NTNU’s managers develop the necessary skills to exercise good leadership, - increasing awareness of the mechanisms to ensure good cooperation, involvement and participation. The management programmes include not only managers at Department level, but also Deans, Vice-Deans and Rector´s Management Team, administrative leaders, as well as research and education leaders. For the period 2013-2017, the programme has three main focus areas:

* developing individual leadership skills,
* introduction to financial and legal matters, HR and HES, and
* management team building at Faculty level.

In the autumn of 2013, all Heads of Departments were invited to participate in the new management development programme and most of them accepted the invitation. In the current programme period, training on operational topics (financial and legal matters, HR and HES) are delegated to the Faculties. Some Faculties have made ​​good progress with the systematic training of their management teams in these areas. As a follow-up of the management training programme in 2013, some of the main themes have also been discussed further at the Rectors´ weekly meeting with the Deans (Deans’ meetings).

NTNU also offer courses for academic leaders in education and research who wishes to further develop their leadership skills. The target groups are leaders for example of study programmes, academic groups, projects and centres. The programme takes on 30 participants per course. Evaluations after each course are actively used to continually improve the course. Good leadership is a prerequisite for academic activities at a high international level, and NTNU will continue to work systematically with management development.

At the NTNU Professional Development Portal, skills development courses are announced which are open to all employees at NTNU. Many of the courses are relevant for managers and researchers such as courses in project management and project methodology, performance appraisals, English language proficiency, IP, contracts, research ethics or media training.

**Improvement measure: Research project administrative support***It is desirable to strengthen the support network around researchers in large externally funded projects. The choice of actions to be taken is to be adapted to the needs of the academic environments. Deadline: ongoing process. Responsible: Director for Financial Division*

Externally funded research represents 35 % of the total NTNU budget of NOK 5.6 billion (2013). The past five years, external funding has increased by 19 %; whereas EU research has increased by 27 %. In order to maintain researcher employment and advanced research infrastructure, it is important to continuously seek external funding. In expanding areas, challenges relate to the ability to recruit qualified researchers, and provide sufficient infrastructure and support for expanding research activities. Externally funded activities are desirable, but also place substantial obligations on the host institution.

Strengthening the support network around researchers in large externally funded projects has been on the NTNU agenda since the first NTNU Action Plan was adopted in 2010. As a result of the financial services project (LØF-project) coordinated by the NTNU Financial Division, roles and responsibilities of project managers and line management were defined. Financial support functions have since been professionalized at the Faculties and in the university administration. There has to some extent been a shift from pure “accounting” to “financial management support”. All faculties now have controllers and a team of project economists to provide better services to the project leaders and line management. At university level, a special support team provides financial management support to all EU-projects. EU-projects are also prioritized in terms of legal and contractual support from the university lawyers and EU advisers.

Evaluations of the above mentioned financial services project indicate that the administrative support functions have been upgraded. Courses are provided for project economists, and information about new routines and mutual learning is facilitated in regular meetings in the Project Economist Network. A website is developed with step-by-step checklists for leaders of research projects covering the whole range of issues at stake: external funding, HR, legal issues, strategic planning etc.

The main challenge now is to improve compliance with NTNU guidelines among project managers and line managers. The challenge is addressed in the “Project in Focus”-project which is running this year. There has been wide involvement across Faculties in the various project groups. Their advice is to have a comprehensive approach across traditional administrative boundaries as this is the reality you face as a project manager or Department head. The work will lead to further improvements in routines and checklists. The next challenge will be to reach out to busy managers with information to raise awareness of responsibilities and sources of support. At the Faculties’ management training programme last autumn, an externally funded project was deliberately used as a case allowing the new management to discuss key topics such as recruitment and financial management.

Given the substantial externally funded research activity, continued attention must be given to further develop the administrative support and professional management of this activity.

## Relevance to society, dissemination and innovation

**Improvement measure: Pre-seed funding for commercialization***To stimulate the commercialisation of research results, NTNU Discovery offers project funding for the verification of new ideas. Deadline: NTNU Discovery project 2011-2014. Responsible: Pro-Rector for Innovation.*

Lack of pre-seed funding is a major challenge in the Norwegian innovation system. With external funding, NTNU set up NTNU Discovery 2011-2013 to give better opportunities for pre-seed funding and verification of ideas from NTNU research. NTNU Discovery has been a success. After three years, ideas supported by NTNU Discovery have led to 18 new companies which have attracted NOK 50 million in external funding. Despite the good results and societal return on investment, pre-seed funding continues to be lacking in the public funding scheme. NTNU has, thus, together with the external partners prolonged NTNU Discovery for another two years 2014-2015, and continues to lobby for an improvement in public funding mechanisms.

At NTNU, there is a strong culture for innovation in technology, science and medicine. This is reflected in a steady flow of ideas registered by NTNU Technology Transfer of about 100 ideas annually from researchers. Many of the ideas have a commercial potential, and in 2013 the NTNU Technology Transfer office applied for 39 patents and established 8 companies. There is also a market interest in these technologies, and 6 technologies were sold and 3 licence agreements signed last year.

Weak funding for research based innovations is the most pressing external hinder for taking out more of the commercial potential from NTNU research. Internally, challenges relate to incentives and infrastructure. Even if there is a strong culture for innovation in many research areas, it is desirable to reach out wider among researchers at the Departments. Goal-oriented work is done to discover and take out more of the commercial potential from the largest research centres at the university. In terms of infrastructure, NTNU has an on campus incubator for research based start-up companies. The long term ambition is to develop an innovation centre to expand activity and co-locate the actors involved in the NTNU eco-system for innovation.

# Recruitment

## Recruitment

**Improvement measure: Revision of appointment process***To avoid the loss of talented candidates during the recruitment process, efforts are being made to introduce revisions and simplifications that will speed up the appointment process. Deadline: To be evaluated in 2012. Responsible: Director for HR Division*

NTNU has open recruitment processes, and laws and guidelines ensure participation, transparency and quality. To take one example, the “Qualification Principle” assumes that jobs in the public sector are announced and that the most qualified applicant gets the position. Because there are many quality standards to deal with, the recruitment process sometimes takes longer than desired.

The goal to speed up the recruitment process is derived from NTNU's strategy and the risks of losing good applicants if the process takes too much time. HR professionals have a hard-charged work situation already. It is therefore important to find ways to work smarter, rather than placing an even heavier workload on individual HR personnel.

In the HR project (2009-2011), NTNU focused on development, simplification and procedural revisions in the entire recruitment process. Process maps, descriptions, checklists and other tools were developed by the HR project in collaboration with HR professionals from the Faculties.

Formal hindrances can make it difficult to further reduce the time for permanent academic positions. In the beginning of 2013, the Director of HR Division therefor initiated a new project focusing on the recruitment process for academic positions. The aim was to collect best practice at NTNU in search of smart solutions which would further reduce time without compromising quality.

In 2012, the Director of HR Division took an initiative to develop HR indicators. Through the process it became clear that indicators do not make sense in isolation without objectives and priorities. It was decided to work out strategic goal areas for HR at NTNU. The proposal was based on NTNU's strategy 2020 and the NTNU Personnel Policy, and sought to address strategic areas related to HR set by the Departments, Faculties and University. The strategic areas identified were:

* Staffing and Recruitment,
* Mobility and Internationalization,
* Performance and Development,
* Equality,
* Temporary positions, and
* Participation and Working environment.

Rector decided that the HR Division should give priority to the first two areas, “Recruitment” and “Internationalization”, the coming year.

The HR Division is operating two networks to reach out to staff engaged in HR at the Faculties and Departments. Through the *HR Management Network*, HR managers’ participation and commitment is facilitated, as well as input and suggestions for further work. In the *HR Forum* information and best practice is shared among HR professionals. The Forum may also facilitate training and theme-based micro networks.

There is, however, a need for HR to become more strategically oriented to better contribute towards NTNU’s goals. NTNU uses a lot of HR resources on transaction-oriented tasks, which comes at the expense of the capacity for strategic management support. With an administrative approach to HR, laws are often seen as a hindrance for the organization. Taking a more strategic HR approach, one would rather try to exploit the scope of action available within the given legal and regulatory framework. If HR is involved early in the project development, staffing can be integrated in the planning process. This may lead to better applications for research funding from the EU/the Norwegian Research Council or industry, because HR has provided knowledge about the human resources needed in the project and the regulations relating to staffing.

NTNU is working on developing the HR function to become more strategic oriented and will continue to develop a more professional HR practice in order to better support the core activities. One example is to examine measures to release time for HR consultants, so they can spend more time on advisory work. Strategic planning is a precondition in order for HR to work more proactively with recruitment. The Faculties and Departments are working with strategic manpower planning with the aim to support academic strategies by linking academic goals, manpower needs, and financial means.

For HR personnel it would be an improvement to get a recruitment tool which would provide a basis for analysis. Such a tool would give them a better opportunity to follow-up the time used in the recruitment process, and possibly also to collect information about applicants' experienced quality of the process.

**Improvement measure: International recruitment into strategic manpower planning***International recruitment should be included in strategic manpower planning of the departments. Deadline: International action plan 2011-2014. Responsible: Faculties*

According to a recent report by the Ministry of Education and Research (Research Barometer 2014), NTNU is the most international university in Norway, and in 2013, 35 % of the NTNU researchers were foreign citizens. The share had increased by as much as 10 percentage points in five years. International recruitment has thus become part of university life while at the same time representing a challenge as can be seen in this self-assessment report relating to measures such as mobility service, working environment and PhD-education.

The NTNU International Action Plan is currently being revised with the aim to have a new action plan approved by summer 2014. There has been wide involvement in the revision process, and the main themes were discussed at a Rector-seminar with the Department heads this winter. International recruitment continues to be an important topic in the revised action plan. To include international recruitment in strategic planning is still considered important even if there may be other relevant instruments to this end in addition to “strategic manpower planning”. The most important is to encourage Faculties and Departments to clarify their international ambitions and how strategic resources should be prioritized in support of these ambitions. Developing suitable instruments for international recruitment and networking should be considered; Recruitment of “international chairs”, international guest researchers and adjunct professors are concepts which probably will be further elaborated in 2014. A NTNU Onsager Fellowship Programme for the recruitment of international researchers is another concept which may be tried out as a pilot in the coming strategy period 2014-2017.

## Researcher mobility

**Improvement measure: Establish and run mobility service centre**
NTNU International Researcher Support was established in 2010. In the initial phase, focus will be on the immigration process, accommodation, careers for partners, and the publication of relevant information in English on NTNU’s website. Deadline: 2013. Responsible: Director of HR Division.

NTNU International Researcher Support (NIRS) was opened May 2010. It started out as a project and went into general operation as a part of the regular support from the HR Division in 2012. NIRS consists of 3 full-time positions and has its own facilities with room for activities as well as for guidance and support. Since 2012, NIRS has focused *on:*

* *immigration (special day for researchers)*
* *housing (web info, agreements with lessors)*
* *partner career (Eures jobs, internal networks with international lunch, volunteer networks)*
* *Expat supplement to NTNU services*
* *Contribute to develop national Euraxess website*
* *Intranet upgrade in English*

*Accommodation* has high priority, and one full time position is dealing with rental of NTNUs own apartments which are reserved for international staff only, as well as support with housing related issues and cooperation with private companies (agreement with two professional lessors).

*Immigration* processes are of vital importance when recruiting international staff. NTNU needs to pay attention to both structural and individual support. At NTNU, the Departments are the main contact point for academic staff while NIRS has a back office function. NISR provides seminars to all HR staff on a regular bases, organizes seminars with immigration authorities on Campus, shares information at HR meetings and at the Faculties when they ask for additional training on given topics. In difficult cases, NIRS also provides direct support to researchers and their families. NTNU cooperates with two private relocation companies as well to secure knowledge and extra support when needed. NISR takes an active part in dialogue and knowledge exchange with Immigration authorities through regular meetings with representatives from the Norwegian Directorate of Immigration and the Police approximately four times a year. NISR also cooperates with the tax authorities who come every year to hold seminars on tax issues and also offer individual guidance on the tax return submission.

*Dual careers* had a special focus in 2013 and NIRS will continue to develop services and knowledge in this field. NTNU took part in the TANDEM initiative survey (EU call) and will visit the conference in Zürich in June 2014. Dual career is of strategic importance, but takes a lot of effort to be truly successful. Workshops about “Working with Norwegians” and “How to apply for a job” started up in the autumn 2013 and will be offered on a regular basis. Language training and dialogue cafés with a facilitator have taken place at NIRS for years. Representatives from the Chamber of Commerce and the Municipality have taken several initiatives towards NTNU, and there has been a commitment by the City Council to take further this collaboration. Social and networking events are also open to partners of the researchers. Through the Volunteer Network for researchers and partners, NIRS learns to know these persons quite well, and may serve as a reference when partners apply for a job.

*Information in English* can never be good enough. NISR has developed new NTNU webpages for international staff and administrative staff to be launched in June 2014. NISR is also actively involved in upgrading the Norwegian Euraxess website hosted by the Research Council of Norway (Euraxess Bridge Head Organization). There is still a need to improve the communication in English both internally at NTNU and from Norwegian authorities.

NIRS has welcomed more than 1000 researchers and partners to activities during 2013 and keeps adding new initiatives to the calendar of 2014. In 2014, NISR can offer a wider selection of cultural training and working in Norway courses, and plans to double the number of seminars and seats offered in 2014 compared to 2012.

NIRS works directly with the researchers and the support staff at NTNU. With an increasing attention to the field of relocation and international recruitment, NTNU will need to look at how it organizes initiatives and resources. There is a need for even more direct support and follow-up of individual researcher and families, as well as an integrated support system. International mobility challenges all parts of the university organisation, from admission to infrastructure, housing and taxation. An increasing number of support staff at the Faculties and Departments asks for better coordination, and clear procedures and distribution of responsibility in matters relating to international recruitment and researcher mobility. This will be an important development area in the coming years where NTNU will have to find a suitable balance between specialization of services at institutional level and distribution of responsibility at Faculty/Department level.

# Attractive working conditions

## Employment contract, salary, and incentives

**Improvement measures: Rewarding highly skilled researchers***The personnel policy allows for a greater degree of differentiation with respect to rewarding the most highly skilled researchers. To exploit these opportunities to a greater extent than at present there is to be increased awareness among managers and the concept needs to mature in the academic environments. Deadline: ongoing process. Responsible: Director of HR Division*

The NTNU wage process is transparent. The Basic Agreement for the Civil Service contains general wage and employment terms for public sector employees. In addition NTNU’s local wage policy is developed in collaboration between the working parties. Pursuant to Norwegian legislation, PhD and Postdoc positions have fixed term contracts and a predictable wage growth according to the State wage scale. Regulations relating to wages for researchers and other academic positions are more flexible, and wage differentiation may be used to recruit top researchers to reach the strategic objectives of NTNU.

The focus on elite researchers has been discussed for some time. One challenge has been resources, another is related to culture. Elite focus is not unproblematic in a Norwegian university culture founded on principles of equal distribution of resources. NTNU Top Research was launched in 2013 and is a general term for a number of new and old initiatives and measures which aims to motivate and nurture the very best researchers and research groups. The priorities include both the development of the talents we already have, and international recruitment of new ones.

NTNU gives particular priority to qualifying researchers to gain ERC grants within Horizon 2020; the so-called Star Programme is oriented specifically towards this. The Star Programme shall provide excellent conditions for 15 young talented researchers. The 11 who currently are handpicked shall get a settlement for part of their teaching and administrative duties and they will also receive mentoring and international sabbaticals.

Participation in EU's Framework Programme for Research and Innovation is the main priority in NTNU's international cooperation. NTNU continues with goal-oriented efforts to increase participation in EU research by developing support measures to make the academic environments better able to succeed. NTNU's International Action Plan is being revised in spring 2014 and will be submitted to the Board of NTNU before summer. The Action Plan reflects the heavy focus on high participation in Horizon 2020. Measures include close monitoring of the applicants in the application phase, the supply of professional resources for increased capacity to selected research groups, an incentive programme that rewards those who get projects with additional financial support and positions from NTNU, continuous competence development in the administrative support services and emphasis on participation in important venues in Europe.

At the time of the mid-term self-assessment of the NTNU Charter and Code Action Plan, reducing unnecessary *temporary employment* contracts was a priority issue. In the public sector, permanent employment is the general rule. In the university sector, temporary employment is, however, allowed on project basis or if the activity is not permanently organized. Pursuant to Norwegian regulations employees have the right to permanent employment if they perform permanent tasks (e.g. teaching, management). The current rules for reinforced employment protection makes it difficult to offer permanent employment based on temporary financing as it is difficult to sack people once they are employed. The past years, NTNU has systematically worked to reduce temporary employment. Measures have been taken to ensure that temporary staff, who has acquired the right of permanent employment due to length of contract or tasks performed, also get this formalized in their work contract. NTNU has succeeded in reducing the percentage of temporary employees in academic positions from 20.5 % in 2010 to 18 % in 2013. Statistics show that NTNU continues to reduce the use of temporary employment, and is below the average in the university sector in all job categories.

## Non-discrimination and equal opportunity

**Improvement measure: Action plan for gender equality***The action plan for gender equality 2011-2012 includes start-up packages, qualification fellowships, and mentor programmes for females in academic positions. The results are to be evaluated and the new action plan is to be adopted in 2012. Deadline: 2012. Responsible: Pro-Rector for Research*

Equal opportunity has high priority at NTNU, and there is significant management focus on improving the percentage of women in academic positions in areas with few female staff. NTNU has since 1997 developed goal-oriented strategies and action plans which serve as a “tool box” for the university management working towards the objective.

Action plans have been evaluated by the Gender Equality Committee chaired by Pro-Rector for Research. New plans have been adopted by the University Board, - the last ones in 2012 and in 2014. The following measures have proved their efficiency and continue to be the core measures of the action plans:

* *Start-up packages* for new female academic staff at departments with less than 25 % females in permanent academic positions,
* *qualification fellowships* for female associate professors (likely to be able to qualify to professor competence and title within 2 years) and
* *mentor programmes* for female PhDs/Postdocs and associate professors.

The equal opportunities adviser at Rector’s Office is responsible for the execution of the core measures which were allocated a budget of NOK 4.3 milllion in 2013 (528 900 Euro).

In the 2014-2016 plan, strategic and practical advice to the departments on how to promote equal opportunities in the recruitment process, were included. The responsibility of the line management to promote equal opportunity is underlined. Gender equality will be an important theme in the management training programme at NTNU, and the equal opportunities adviser is frequently visiting the faculties and departments.

Gender equality is a key performance indicator at NTNU as well as in the university’s report to the Ministry of Education and Research. NTNU is moving in the desired direction and the share of female professors have increased from 19 % in 2010 to 22 % in 2013 (see table on next page). Continuous attention and goal-oriented action is particularly required in science and technology where the share of female professors where 7-11 % at the engineering faculties in 2012. With the aim to widen the future recruitment base, NTNU will use the incentive funding from the Ministry of NOK 300 000 (36 900 Euros) per new female academic staff appointed, to headhunt female adjunct professors.

**Share of females in academic positions at NTNU. Source: Database for Statistics on Higher Education**

## Research and work environment

***Improvement measures: Carry out and follow-up working environment survey****The institutional working environment survey at NTNU will be carried out in 2012 and followed-up in 2013. Deadline: 2013. Responsible: Director of HR Division*

The *Working Environment Surveys* are to provide employees and managers with a framework for further developing the social working environment at their academic unit. NTNU has conducted working environment surveys in 2007, 2009 and 2012. The next survey is planned in 2014.

Referring to the survey in 2012, each unit has discussed the results of the survey and developed improvement measures. Typical measures were related to information flow, distribution of work load, social activities, competence development and annual performance appraisals. The low participation in the survey (56 % in 2009 and 54 % in 2012) was a discouragement to university management. However, 83 % of the unit managers reported that they were pleased or moderately pleased with how the working environment survey functioned at their unit (Source: Internal evaluation, February 2014). Only 10 out of 134 units did not organize follow-up activities after the survey. The internal evaluation was discussed with the Deans and representatives of the working parties at NTNU.

Preparing for the next survey in the autumn 2014, NTNU will learn from the experience of units with a high participation rate. Experience has shown that management is key to a successful survey and follow-up. It will be important to enable the Department heads to take lead both in preparation and follow-up of the survey. Clear expectations and active support from the Deans are also vital. The possibility of getting management support from the HR and HES Divisions in challenging personnel cases and in work environment conflicts are highly valued by the Department heads, and the Divisions will continue to give high priority to providing such management support.

***Improvement measures: Annual performance appraisal for PhDs****All employees, including temporarily appointed researchers and PhD candidates, are to be offered an annual performance appraisal. Deadline: annual. Responsible: Director of HR Division*

All employees at NTNU are to be offered an *annual Performance Appraisal*. According to the working environment survey, the share of employees who report that they have had such a meeting the past 24 months has gradually increased from 59 % in 2007 to 66 % in 2012. It has in particularly been challenging to provide this opportunity to all temporary academic staff and PhD candidates. The ambition remains as it is important for young researchers to get an opportunity to discuss career development and working conditions with a senior staff member/manager other than their academic supervisor. The working environment survey in 2012 and the internal evaluation in 2014 also indicated that temporary academic staff of which many are international staff, is a group which should be given particular attention in the local working environment.

# Research training and career development

## Organized research training and supervision

**Improvement measure: Follow-up PhD-projects on quality development***NTNU will develop and enhance the quality of the organized research training throughout the PhD programme: improving the visibility of the education, selection of PhD candidates and supervisors, supervision, implementation, the course component, completion, and disputation. A separate follow-up plan sets out responsibilities and deadlines for the various parts of the programme. Deadline: Implementation of the new PhD regulation in 2012. Responsible: Pro-Rector for Research.*

The operative responsibility for the PhD education rests with the Faculties at NTNU. The education is organized in 50 PhD programmes, and currently about 2200 PhD candidates are enrolled in these programmes. More than half of the candidates have PhD positions funded by the university (Ministry or Research Council). Some of the candidates have external funding as industry PhDs or as research fellows at university colleges. There has been a significant expansion in the PhD education at NTNU in later years, and the number of PhD graduates increased from 250 in 2010 to 370 in 2013. Last year 24 % of the PhD candidates in Norway graduated from NTNU. NTNU has particular national responsibility for PhD education in technology (90 % of the PhD disputations nationally in 2013).

Quality development in the PhD education has been given much attention at NTNU the past years. In the first NTNU Charter and Code Action Plan, *the PhD project* was one of the pillars of the plan. The PhD project was a follow-up after a survey among PhD candidates and supervisors the year before which gave valuable advice as to where there was a potential for improvement. Project groups were set up and measures discussed in the NTNU Research Committee as well as at the Deans’ meetings. The work resulted in a NTNU PhD Handbook (2011) describing common standards, roles and responsibilities in the PhD education, as well as recommendations based on best practise at NTNU. The NTNU PhD Regulation was, furthermore, revised in 2012. The next steps were to implement the Qualifications framework in the PhD education (2012) and to develop a Quality assurance system for the PhD-level (2013). The Faculties and Departments have been widely involved in these development processes and are conferred the responsibility to implement the new quality standards and systems.

A new survey among PhDs and supervisors in 2013 revealed that there is still some work to be done to reach the desired quality level and best practise described in the above documents. In 2013, the Handbook was no longer well known, thus further work is needed to increase *awareness of common obligatory standards and best practises*. The NTNU Research Committee and the Faculties will be involved in discussions and sharing of best practise on important issues such as: start-up conversation with new candidates, mid-term evaluation, annual progress reports, reception of international PhD candidates, and the supervisor’s role and function.

**Improvement measure: Training programme for PhD supervisors***NTNU will offer a training programme for supervisors engaged in PhD education. Deadline: 2013. Responsible: Pro-Rector for Research*

In the PhD-survey in 2013, candidates and supervisors were asked to assess the skills of the supervisors. Their answers confirmed that continued attention must be given to the *quality of supervision*. According to the PhD Handbook, the supervisors are responsible for their own skills development. It is, however, up to the Faculty/Department to assess if their competence is satisfactory when they are appointing supervisors.

NTNU is behind schedule in terms of implementing the Action Plan ambition to offer training programmes for supervisors. Some Faculties have started up on their own and have offered seminars and training for their supervisors, but a supplementary programme (or course modules for Faculty programmes) should be developed at university level. This will be given priority in 2014/2015.

Experience from Faculties who have run such programmes indicate that the main challenges are related to motivation, relevance and capacity. It is in general challenging to motivate academic staff to seek training given that their days are packed already. However, incentives and clear management expectations encourage staff to participate. It is also important that the training is relevant in term of contents and quality. The Section for University Education, which is responsible for the obligatory university pedagogical training, already runs courses in Master’s level supervision and may assist the Faculties also at PhD level.

Both in the 2009 and the 2013 surveys, internationalization has been a theme. As laid down in the NTNU International Action Plan as well as best practise described in the PhD Handbook, gaining international experience by staying abroad for a period of time should be part of the PhD education. Seeing that the supervisors play a key role in the candidate’s academic development, it is a challenge that ¼ of the supervisors report that they do not include internationalization when they plan the PhD education with their candidates. Only ¼ of the candidates report that they have spent at least 3 months abroad, and many of them points at lack of funding and international networks as the main hindrances to going abroad. Given that more candidates would like to go abroad, the surveys give clear indications as to what the institution and supervisor should improve.

In order to stimulate the candidate’s internationalization, it is a precondition that the supervisors themselves are internationally active. In this respect it is discouraging that only less than half the supervisors have spent more than 3 months abroad the past seven years. This said, many outstanding researchers are internationally very active in other ways, and the most important is that the supervisors introduce their candidates to international networks, projects and participation in the international research community. Candidates are also in many research groups exposed to internationalization by the fact that such a large share of their colleagues, are foreign nationals (41 % of the PhD graduates in 2012).

## Career development

**Improvement measures: Career development into performance appraisals***Performance appraisals are to be used as a basis for skills and career development. A new guideline for performance appraisals is implemented in 2012. Deadline: ongoing process. Responsible: Director for HR Division*

Performance appraisals are a tool for systematic follow-up of employees and are well established in the Norwegian labour market. An important purpose of performance appraisal is to create a better foundation for achievement and a good working environment. Performance appraisals should be a supplement to the continuous and daily dialogue between manager and employee.

NTNU has chosen to use appraisals as an HR-tool since 2003. All managers have a duty to annually carry out appraisals of their staff, and all employees have the right to have a performance appraisal with their manager. The HR Division has developed a checklist of content in the performance appraisal. A separate checklist has been developed for PhDs, Postdocs and temporary research staff. It is intended as a conversation guide to be adapted to the unit, the manager and the employee's situation and relationship. The checklist spans topics such as: responsibilities and tasks, working and collaboration, management, development and goals, career planning discussions with young researchers, and balance between work and spare time. To meet the large proportion of foreign employees at NTNU, the theme of cultural integration has been added. Each leader must consider whether this is a relevant issue when meeting each individual employee. There are annual courses in appraisals, and these courses are advertised on the NTNU Professional Development Portal.

In Norway and Europe there has been some focus on career and skills development for academic staff. The Norwegian Association of Higher Education Institutions (UHR) has the past year established a working group to give an account of attractive career paths and increased mobility in research (NTNU’s Pro-Rector for Research is chair). Internally, another group is set down to investigate how NTNU can work more systematically with skills and career development.

When promoting skills and career development, one may in principle divide the measures in three categories: competence, mobility and organizational measures.

* With regard to “competence”, NTNU has for a number of years had a *Professional Development Portal* to meet demand for skills development courses for academic and administrative staff. Courses cover a range of topics and include among others: project management, HES, academic writing in English and media training.
* In this report NTNU’s work to facilitate “*researcher mobility”* is described. Generous opportunities for sabbatical leave, is another example of how NTNU encourage mobility.
* NTNU also takes “organizational measures” to promote career and skills development.
Annual performance appraisals, strategic manpower planning, mentor program for female researchers, and the management development programme, are examples of NTNUs organizational approach to skills and career development.

In the “Memo about how the Charter and Code was implemented at NTNU” (May 2012), there is an overview of relevant skills and career development measures at NTNU and how these relate to the Vitae Researcher Development Framework.

**Improvement measure: Clarify policy for sabbatical leave***Resources should be made available by the Faculties in support of researchers who want to take sabbatical leave and for PhDs pursuing their research work staying for a longer period abroad. The NTNU policy for sabbatical leave should be clarified. Deadline: International Action Plan 2011-2014.*

Cross-border mobility is a high priority at national and European level in the ERA and Horizon 2020. This was also reflected in the NTNU International Action Plan 2011-2014 which set as a target that all academic staff and 25 % of the PhDs should have a longer research period abroad.

In 2012, NTNU conducted a study to establish a basis for developing an internationalization and outbound mobility policy for the university. The findings and suggestions were presented and discussed at the Dean’s meeting with Rector. As a follow-up, the HR Division supported by a high profile reference group has drafted an NTNU policy for sabbaticals and long term stays abroad. Today sabbatical policies are primarily at Faculty level. The Deans will discuss the proposal in June, and NTNU aims to have a new policy up and running by the end of 2014. The main issues in the proposal so far cover:

* a common frequency as to when the researchers can apply for a sabbatical,
* the kind of funding/support NTNU and other parties will provide, and
* a support function at university level for mobile researchers.

The main challenges are what the right frequency should be, the level of support, and how to get the best researchers to go aboard. Other issues discussed are how to make the best use of internationally recruited researchers at NTNU and the balance between in- and outbound mobility.

NTNU International Researcher Support (NIRS) already provides some support to outgoing researchers with updated information on the web. NIRS also offers annual seminars for researchers going abroad for a longer stay focusing on legal and practical issues. However, NISR has no dedicated, and therefore, limited capacity to give personal guidance and assistance to individual researchers and Faculty support staff. Knowledge about in- and outbound mobility is complementary, and this is an argument for having dedicated staff who can serve both forms of mobility at university level in the future. The division of responsibility between NIRS and the Faculties/Departments will be further discussed and evaluated in the follow-up of the new NTNU sabbatical policy.

**Improvement measure: Encourage females to seek promotion to Professor**
To encourage more females to apply for promotion in their academic careers, NTNU will offer internal training and guidance in writing applications for promotion. Deadline: Action Plan for Gender Equality 2011-2012.

A one day seminar providing guidance in writing applications for promotion to professor is offered to recipients of “qualifications fellowships for females” and has been organized every two years. Experience has shown that guidance on how to present your work against the criteria of promotion increases the likelihood that the application is successful. The last seminar was held two years ago. The two professors who used to run the seminar have retired and new peers must be found to continue this offer.

On a more general note, awareness of the criteria gives valuable guidance on what type of academic work and experience academic staff should prioritise in order to obtain promotion. Such knowledge should preferably be brought into the annual performance appraisals with associate professors. The Department Heads are, furthermore, encouraged to support female associate professors to apply for “qualifications fellowships for females” if they are likely to be able to qualify for professor within a few years. The qualification programme has shown good results and most recipients obtain promotion within a few years after the fellowship-period.